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REMARKS

This communication is in response to the Office Action mailed on February 6, 2006. In the Office Action, claims 1-38 and 40-49 were pending, of which claims 1-9, 17-18, 20-23, 25-27, 36-37, 40-41, and 47-49 were rejected and claims 10-16, 19, 24, 28-35, 38, and 42-26 were objected to.

The Office Action further objected to the drawing. It is noted that formal drawings are being submitted herewith. Applicant respectfully requests review and acceptance of these formal drawings.

The Office Action reports that claims 1-9, 17-18, 20-23, 25-27, 36-37, 40-41, and 47-49 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,460,012 to Welch et al. (hereinafter Welch). Welch discloses a non-linear method and apparatus for manipulating data in order to detect imminent failure due to crack growth in structural elements. It is noted the purpose of the present inventions as recited in claim 1 is to detect the point of engagement in a material testing apparatus such as an indenter or tensile testing system.

Claim 1 has been amended to recite a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a point of engagement in measurement data of an indenter or tensile test system, comprising the steps of: receiving measurements as a function of at least one variable; generating values from the received measurements, the values indicative of multiples of a standard deviation; selecting a lower bound of the values based on a first selected multiple of the standard deviation, selecting an upper bound of the values based on a second selected multiple of the standard deviation; and calculating the point of engagement based on the lower bound and the upper bound. [emphasis added]

The amendments to claim 1 substitute a "point of engagement" of an indenter or tensile test system in place of "a

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significant event." It is respectfully submitted that Welch's point of "imminent failure" is not the same subject matter as the "point of engagement" recited in claim 1. It is noted that applicant considers "point of engagement" to be synonymous with "engagement point." Thus, these two terms have been used interchangeably. For illustration, the present specification describes a point of engagement as follows:

For contact-type tests used typically to measure a mechanical property such as hardness, and which typically utilize an indenter, the engagement point is the point at which the indenter first contacts and begins to apply force to the test surface. For tensile tests measuring, for example, stress and strain, the engagement point is the point at which all slack has been removed from the test apparatus and test sample, and any further movement in the same direction begins to stress and strain the test sample. [Specification, page 1, lines 18-28] [emphasis added]

In contrast, on review of the Welch reference, it is clear that the point of engagement has already passed and is not at issue. Instead, it is submitted that multiple stress and/or fatigue cycles are applied to the test sample in order to detect imminent failure of the sample.

In light of the foregoing, it is believed that claim 1 is patentable over the cited art. Claims 2, 5 and 48 depend on claim 1 and are believed to be separately patentable. Reconsideration and allowance of claims 1, 5 and 48 are respectfully requested. Claims 3-4 have been cancelled.

Independent claims 6 and 7 have also been amended so that significant event now refers to a point of engagement of an indenter or tensile test system. Remarks relating to claim 1 are herein incorporated by reference. Thus, it is believed that claims 6 and 7 are patentable over the cited art. Claims 8-9 depend on claim 6 and are believed to be separately patentable.

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Reconsideration and allowance of claims 6-9 are respectfully requested.

The Office Action indicated that claims 10-16 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claim 10 has been rewritten as an independent claim as suggested in the Office Action. Claims 11-16 depend on claim 10. Thus, claims 10-16 are presented for examination and favorable action.

Claim 17 has been amended in a similar manner as claim 1 so that significant event has been replaced by point of engagement of an indenter or tensile tester. Remarks relating to claim 1 are incorporated by reference. Claims 18 and 49 depends on claim 17 and is believed to be separately patentable. Reconsideration and allowance of claims 17-18 and 49 are respectfully requested.

The Office Action further indicated that claim 19 would be allowable if rewritten in independent form with the limitations of the base and any intervening claims. Claim 19 has been rewritten as suggested and is presented to examination and favorable action.

The Office Action reports that claim 20 was rejected based on Welch. The Office Action indicates that Welch at Col. 16, lines 11-30 discloses the feature of calculating the initial point of engagement as a function of both the first point and the second point. As stated above, it is respectfully submitted that Welch relates to "crack growth" which is far beyond the initial point of engagement. In contrast, the present inventions as recited in claim 20 relate to the initial "point of engagement" where the indenter or tensile tester first engages a test sample. Thus, it is respectfully requested that the rejection of claim 20 be withdrawn.

Further, claim 20 has been further amended to recite a computer readable medium including instructions readable by a

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computer, which when implemented, cause the computer to detect an initial point of engagement between an indenter or tensile tester and a test sample from data measurements comprising the steps of: receiving a data series indicative of test measurements as a function of a first variable; generating at least one processed series from the data series; identifying a first point on the at least one processed series; identifying a second point on the at least one processed series; calculating the initial point of engagement as a function of the first point, the second point, and speed of the indenter or tensile tester relative to the sample. [emphasis added]

Thus, the amendments to claim 20 clarify that the initial point of engagement is calculated based on the first point, the second point, and the speed of the indenter or tensile tester relative to the sample. It is believed that Welch does not teach or suggest all of these features of claim 20. Further, as stated above, it is believed that Welch does not relate to initial point of engagement and instead relates to detecting imminent failure, especially as a crack grows in a structural element.

In light of the foregoing, it is respectfully submitted that claim 20 is patentable over the cited art. Claims 21-22 depend on claim 20 and are believed to be separately patentable. Reconsideration and allowance of claims 20-22 are respectfully requested.

Claim 23 has been amended to clarify that the significant event is the point of engagement between an indenter or tensile tester and a test sample. In light of the foregoing, it is believed that claim 23 is patentable over the cited art. Claim 23 is presented for examination and favorable action.

The Office Action indicated that claim 24 would be allowable if rewritten in independent form with all of the limitations of the base and any intervening claims. Claim 24 has

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been amended as suggested and is presented for examination and favorable action.

Claim 25 has been amended in a manner similar to claim 1 so that significant event is clarified as a point of engagement. Remarks relating to claim 1 are incorporated by reference. Thus claims 25 and claims 26-27 which depend on claim 25 are believed patentable over the cited art. Reconsideration and allowance of claims 25-27 are respectfully requested.

The Office Action further indicated that claims 28-35 would be allowable if rewritten in independent form with all of the limitations of the base and any intervening claims. Claim 28 has been amended as independent and is believed to be patentable over the cited. Claims 29-35 depend on claim 28 and are believed to be separately patentable. Claims 28-35 are presented for favorable action.

Claim 36 has also been amended in a manner similar to claim 1. Claims 36-37 are presented to reconsideration and favorable action.

Claim 38 was indicated as allowable and has been rewritten in independent form as suggested. Claim 38 is presented for examination and favorable action.

Claim 40 has been amended in a manner similar to claim 1. Claims 40-41 are presented for reconsideration and favorable action.

Claims 42-46 were indicated as allowable and have been rewritten in independent form as suggested. Claims 42-46 are presented for examination and favorable action.

Claim 47 has been cancelled.


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The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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